Prepress

Technical Specifications

Basic quality standards

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I. SCOPE

This document specifies the general guidelines for the printing services provided by the Colours Factory sp. z o.o. printing house, including the technical requirements for the materials submitted for printing, and the quality standards and acceptance criteria for products produced at our printing house.

II. KEY DEFINITIONS

- **InSite** – A portal accessible online, made available to the customer for submitting files. It is the main file submission method at the Colours Factory printing house.
- **FTP** (File Transfer Protocole) – A server that enables the sending of files to our printing house.
- **Proofing materials** – The materials used as colour pattern in the printing process. Proofing material can be a folded signature approved by the customer or a certified contract proof. Additionally, proofing material can also be a non-certified proof or a previous edition print, but the colour on such a reference is only indicative in nature.
- **Contract proof** – A colour pattern that simulates the end result of the flat offset printing process. A correct contract proof is a proof that has undergone a certifying process as per the applicable quality standards.
- **Proof certification** – Verification whether the proof (colour pattern) has been produced correctly. This verification consists in comparing the Lab coordinates on the proof (the Ugra/Fogra control strip) with the Lab figures of the ICC profile used when the proof was produced. A certified proof must include a control label with Delta E readings.
- **ICC profile** – A file containing the colour characteristics of a given graphic file or device.
- **TrimBox** – It defines the area of the finished page (after cutting) in the PDF format.
- **Bleed** – The area in the artwork that extends outside the cut lines defining the finished page format.
- **TAC** (Total Area Coverage) – It specifies the maximum total ink limit level.
- **Hot melt** – An adhesive activated in high temperature and applied in a heated molten state to make adhesive bindings.
- **PUR** – A polyurethane adhesive used for adhesive binding.
- **LED UV** – An offset printing technology that uses LED UV lamps to dry inks.

III. PREPRESS TECHNICAL SPECIFICATIONS

1. Digital content preparation and submission method

1.1. Digital content must be submitted online, using the following tools provided by our printing house:

- **InSite Prepress Portal** available at www.cfprint.pl. Recommended browsers: Chrome for Windows operating systems and Safari for Mac OS X operating systems. The login and password will be provided by the Account Manager from our Sales Department assigned to your publishing house.
- **FTP server** available at ftp-colours.ogicom.pl. The credentials to access the server will be submitted by the Account Manager from our Sales Department assigned to your publishing house.
- Email and any other method that enables transferring files to our printing house.

1.2. All pages should be prepared as follows:
– PDF files (composite),
– 1:1 scale.

1.3. Resolution of photos in digital files:
– Minimum – 250 dpi,
– **Optimum – 300 dpi**,
– Maximum – 350 dpi.

If the resolution of any colour or greyscale image is higher than 350 dpi, our printing house's computer system will automatically decrease it to 300 dpi.

1.4. Artwork files must not come with any colour profiles attached (no tagged profiles).

1.5. Graphic elements of the page must not include any Open Prepress Interface (OPI) comments.

1.6. All fonts used in the publication must always be included in the file (embedded fonts) or be converted into curves.

1.7. Prior to sending your materials to our printing house, we recommend checking your files with suitable software, e.g. Enfocus PitStop or Adobe Acrobat, to detect the most common issues.

1.8. The digital material submission date will be the date when complete materials that do not require any further modifications are submitted.

1.9. Failure to meet this digital material submission date may delay the dispatch of the finished product. Our printing house will not by liable for any such delay.

2. Graphic layouts

2.1. Each page of your publication should include at least 3 mm bleeds on each side.

2.2. Important textual or graphical elements should be located at least 5 mm from the cut line.

2.3. For adhesive bindings, please note that the second and third page of the binding and the first and last page of the textblock will be glued from the spine's side with a 4 mm side joint, which will reduce the effective format of the centrefolds. If a suitable correction is not made, a section of the image will be missing covered up by the adhesive portion. However, the page format must remain the same, only the image size needs to be modified.

2.4. The TrimBox size must match the finished page format.

2.5. In an adhesive-bound product, the effective page format is slightly reduced as the copy does not open fully.

2.6. Owing to folding and binding tolerances, no image may extend by several millimetres to the adjacent page.

2.7. Owing to printing aesthetics, folding and binding tolerances, a small font size single line may never be located in adjacent columns. The text between columns must not be divided in the middle of the word.

2.8. The minimum font size for a single-coloured text:
– For Lineal fonts: 6 pt,
– For Didone fonts: 7 pt.

2.9. The minimum size of fonts printed in more than one colour or in inverse print:
– For Lineal fonts: 8 pt,
– For Didone fonts: 10 pt.

2.10. The smallest acceptable stroke thickness is 0.2 pt. Lines in inverse print or in more than one colour should be at least 0.5 pt thick.

2.11. To obtain more depth of black in solid colour areas, it must be generated from four colours. The recommended components are C 60, M 50, Y 50, K 100 for coated papers and C 50, M 40, Y 40, K 100 for uncoated papers.

2.12. To avoid registration issues, trappings or minimum colour overlays, must be done. If the customer's personnel are not able to do trappings on their own, please inform our printing house about this and we will provide this service. No information from the customer about doing trappings will be interpreted as the customer's conscious behaviour. In this case, our printing house will not be liable for the quality of colour registration in accordance with the applicable standards. The recommended trapping value is 0.05 mm (0.144 pt). For text in inverse print on a black background composed of four colours, we recommend 0.17 mm (0.5 pt) negative trapping for the CMY colours. Black texts larger than 24 pt against a CMYK colour background must be overprinted. The only exception are black texts on metallic colours, where knockout needs to be used.

2.13. Black texts greater than 24 pt can be made up of four colours as per the components specified in section 2.11.

2.14. All graphical elements of a page must be prepared in the CMYK colour space. Graphical elements and photos prepared in any other colour spaces, such as RGB or Lab, will be rejected. Any spot colours, e.g. Pantone colours, must be converted into CMYK. Spot colours may be used only after prior consultations with the Account Manager (Salesperson).

2.15. Cutting-die files. A cutting-die grid should be superimposed on the CMYK artwork as a spot colour (Pantone) in a vectorial form and with the OVERPRINT parameter.

2.16. The mask for spot UV varnish should be prepared in the form of a separate vector file in black (K) only.

2.17. The Total Area Coverage (TAC) must not be higher than 300% for sheet printing on coated and uncoated papers. To meet the values specified above, our printing house recommends using ICC profiles made available by the European Color Initiative (www.eci.org).

- **FOGRA 51: PSO COATED V3 – COATED PAPERS,**
- **FOGRA 52: PSO UNCOATED V3 – UNCOATED PAPERS.**

2.18. For printing solid colours on larger surfaces, our printing house recommends using a Pantone colour to achieve colour consistency. Printing solid colours in CMYK may result in minor banding – this is a normal phenomenon associated with offset printing. The maximum allowable banding between light and dark areas is DeltaE 1.

2.19. Signature creep. The inner signatures get distanced away from the spine, with the actual figures depending on paper thickness and the signature number in sequence. This reduces the effective page width and shifts the column's graphical content, which, in extreme cases, may result in clipping the graphical elements located near the outer cut lines. To prevent this, our printing house increases the outer margin towards the centre pages, while maintaining other margins and the page size.

2.20. Our printing house will not be liable for the correct transfer of prepress files onto the printing form if the files are not prepared in line with these specifications, and we reserve the right to reject incorrect files.

2.21. Any additional operations performed on the files to meet these specifications and any other modifications made by our printing house on the customer's request will be regarded as additional services to be paid extra.

3. File names

3.1. All files submitted to our printing house must be named using the following naming scheme:

- **Inside your publication – a text block, publication with own cover.** The files must be named just like other pages, with the first page of the cover being the first page of the publication.
  001_title_01.pdf, where:
  001 – indicates the page number,
  title – indicates the publication title,
  01 – indicates the publication issue number in the case of periodic publications.

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Example: 006_Health Catalogue_03.pdf

- **If the publication does not include a cover**, the files must be named as follows: **cov01_title_02.pdf, cov02_title_02.pdf**,

Example: cov01_Health Catalogue_03.pdf

- **Naming pages that do not have page numbers:**
  title_01.pdf, title_02.pdf, where:
  title – indicates the publication title,
  01 – indicates the first page of the leaflet,
  02 – indicates the second page of the leaflet.

Example: Health Catalogue_01.pdf

- **Naming revised pages:**
  006_title_01_revd.pdf, where:
  001 – indicates the page number,
  title – indicates the publication title,
  01 – indicates the publication issue number in the case of periodic publications,
  revd – indicates that the file has been revised and resubmitted.

Example: 006_Health Catalogue_03.revd.pdf

Our printing house uses process automation and therefore file names must never include diacritics, commas, full stops, brackets, etc.

4. Computer to Plate (CtP) parameters

4.1. When exposing the plates in our printing house, the following parameters are used:
Traditional amplitude-modulated (AM) screen:
– Screen design: elliptical,
– Individual screen angles: K – 45°, C – 165°, M – 105°, Y – 0°,
– Exposure resolution: 2400 / 2540 dpi,
– Screen ruling depends on paper quality:

- Coated papers: 175 lpi,
- Coated papers – paperboards 150 lpi,
- Uncoated papers: 150 lpi.

Stochastic/frequency-modulated (FM) screen:
– Staccato screening,
– Dot size: 20 µm.

5. Proofing materials

5.1. It is recommended that a contract proof is included in your production order.

5.2. Contract proofs should be produced after the final revision of the files submitted for printing.

5.3. To produce a contract proof, an ICC profile received from the Account Manager or downloaded from www.eci.org (European Color Initiative) must be used.

5.4. Each contract proof must include a title, publication number, page number, file name and proof date, plus the name of the ICC profile used. Additionally, each contract proof must also feature an **Ugra/FOGRA v3** control strip. If the description or the control strip is missing, the contract proof cannot be used as reliable reference material in our printing house.

5.5. CF produces prints based on the ISO 12647-2:2013 standard, certified proofs, a specimen sheet approved by the Customer and/or a specimen sheet from the previous production job completed at CF (our specimen management policy is described in a separate document). In the case of printing based on materials from third-party printing houses, we do not guarantee obtaining the same colours as in the specimen provided.

5.6. If the Customer approves the print, the proofing material for our printing house will be the folded signature approved and signed by the Customer.

5.7. Should the Customer fail to submit contract proofs, the printing will be produced based on the Lab coordinates for primary ink colours and the dot gain defined in ISO 12647-2:2013 for the specific paper group. In such cases, the colours may not fully match the proof produced after printing.

5.8. If the Customer's proof fails to meet these specifications, it will not be a contract proof. Consequently, the submitted proof will only be a colour pattern of indicative value for the typographer, because the colour obtained may differ.

5.9. The proof must be produced using an ICC profile recommended by our printing house and suitable for the printing base used. The ICC profile may be provided by the Account Manager (Salesperson) or downloaded from the European Color Initiative's website www.eci.org.

5.10. Achieving high correspondence between the print and the colour pattern is contingent on submitting a correctly produced proof. A proof that fails to meet the conditions described in this document will not be considered a reliable colour pattern for the typographer. In such case or when there is no colour pattern for jobs where the quality of colour reproduction is particularly important, our printing house may use a colour pattern produced in house at the customer's expense.

5.11. For regular customers and recurring jobs, our printing house stores colour patterns from previously ordered editions, with a 12-month validity period after which the patterns are disposed of. These patterns are recorded and the records are kept by our Quality Control Department. Any production ordered by the customer is performed based on these patterns.

5.12. In order to carry out spectrophotometric measurements, our printing house uses the DeltaEab reference table defined in the ISO 12647-2:2013 standard.

6. Basic quality standards

6.1. Our printing house will manufacture the products as per the technical parameters specified in your order, assuring product quality. Product quality will be evaluated using the standards specified in these Technical Specifications, unless the parties agree otherwise. Our printing house does not give any guarantee for the fitness of the product for any purpose.

6.2. Our printing house will not be liable for any product defects resulting from faults in the materials submitted by the Orderer or incorrect preparation thereof, including the approved proofs produced by the Orderer, In the case of quantitative or qualitative product defects, our printing house's liability is limited to the obligation of submitting any missing and/or defect-free products without unreasonable delay or to reducing the price proportionally to the number of missing and/or defective products.

6.3. Our printing house's liability for non-performance or improper performance of the agreement is limited to the net price or the net remuneration value paid for defective products or a service, with any warranty being excluded altogether. Additionally, our printing house will not be liable for any actual damage, loss of profit excluded, consequential damage, compromised business interests and/or loss resulting from carrier or courier fees.

6.4. Our printing house will be liable for transferring the products to a carrier (a courier or a forwarder) in time to enable their delivery as per the contract of carriage. If this precondition is fulfilled and nevertheless there is a delay in the delivery of products that is attributable to carriers, couriers or forwarders, our printing house's liability for such delay will be excluded.

6.5. Our printing house will not be liable for the non-performance or improper performance of its obligations, including for any delays in production or delivery of products caused by circumstances beyond our control, including but not limited to force majeure, in particular: forces of nature, actions or omissions of official authorities, wars, strikes, terrorist attacks, fires, floods, droughts, machinery breakdowns, blackouts, and inability to source materials, deliveries or workforce.

6.6. All orders and these Technical Specifications will be governed by Polish law, and any disputes arising in relation to these will be resolved by the court in Piła having jurisdiction over our printing house's registered office, unless otherwise specified in an agreement. For any modifications of these production or order conditions to be valid, a prior written consent of both parties is required.

6.7. If, for the purpose of price calculation, the customer declares an order for a specific volume and then proceeds to order a portion of this volume, our printing house reserves the right to recalculate the order by increasing the price accordingly to the reduced order volume.

7. Offset printing

7.1. Colour

7.1.1. The colours of the finished product should be as close to the colours of the correctly produced contract proof submitted by the customer, with any potential departures being considered against the specific nature of offset printing, paper quality, proof characteristics and any other factors affecting the colours of the print.

7.1.2. Requirements for contract proofs: Each proof must feature an Ugra/FOGRA control strip. Each proof submitted to our printing house must be certified to confirm that the proof has been produced correctly. The current standard for contract proof certification is **ISO 12647-7:2013**, and we at Colours Factory also follow this standard.

Acceptable Proof	Unacceptable Proof
ΔEab CMYK < **5**	ΔEab CMYK > **5**
Mean ΔEab for entire strip < **3**	Mean ΔEab for entire strip > **3**
ΔEab for substrate simulation < **3**	ΔEab for substrate simulation > **3**
Maximum ΔH for CMYK < **2,5**	Maximum ΔH for CMYK > **2,5**
Mean ΔH for grey balance < **1,5**	Mean ΔH for grey balance > **1,5**

Measurement conditions:
– White backing,
– D50 illuminant,
– Standard 2° observer,
– Absolute value,
– No polarising filter.

7.1.3. Optical densities are carefully selected for the printing process in order to obtain CMYK solid colour Lab figures for given paper group and inks, as per the **ISO 12647-2:2013** standard used at Colours Factory.

7.1.4. Allowable CIELAB ΔEab deviations in print as per the Lab parameters for the individual colours.

	C	M	Y	K
Deviation tolerance	5	5	5	5
Print run variability tolerance	4	4	5	4

7.1.5. Allowable colour deviation for products in a print run, measured using at least 3 print run samples:

Colour Type	Coated Paper Matt / Gloss	Offset Paper	Single-Side Boards, GD2
Pantone	ΔEab < 4	ΔEab < 5	ΔEab < 5
CMYK	ΔEab < 4	ΔEab < 5	ΔEab < 5

7.1.6. The colour intensity check for special colours (Pantone) is done based on digital values saved in the spectrophotometer. In addition, our printing house performs a visual inspection against the Pantone Colour Pattern. The allowable Pantone colour deviations are specified in section 6.1.5.

7.1.7. The allowable colour variation resulting from banding between light and dark areas:

Acceptable Colour	Unacceptable Colour
ΔEab < 1	ΔEab > 1

7.1.8. Prints finished with UV varnishes, an offset varnish or lamination may change colour, so they cannot be considered as a reference material for proofs, neither can they be colour patterns for future print jobs.

7.1.9. Print parameter tolerance for a folded signature accepted by the Customer or by our authorised employee:

	Correct	Incorrect
Optical density	≤ ± 0,1 D	> ± 0,1 D
Screen dot gain	≤ ± 4 %	> ± 4 %

Measurement conditions:
– Black backing,
– Status E (DIN),
– Relative value,
– No polarising filter.

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7.1.10. Colour correspondence between the contract proof and the print is carried out visually in standard D50 lighting as per **ISO 3664:2009**.

7.1.11. If required to obtain the optimum correspondence with the pattern material, Lab figures for large solid colours may exceed the tolerance limits specified in **ISO 12647-2:2013**.

7.2. Colour registration:
Allowable registration deviations for colours overprinted one after the other:

Correct	Incorrect
≤ 0,18 mm	> 0,18 mm

7.2.1. The registration of the image and the ink layer for spot varnishing with a dispersion/offset varnish:

	Correct	Incorrect
For sizes up to 1000 mm	≤ 1 mm	> 1 mm
For sizes above 1000 mm	≤ 2 mm	> 2 mm

7.2.2. Varnish layer:
An offset/dispersion varnish layer will be considered incorrect if the surface designated for varnishing comes out with unvarnished, peeling areas etc.

7.2.3. Defect extent assessment:
In all cases, the basis for assessing the percentage of defective signatures will be the control signatures put aside based on internal procedures.

7.3. Print defects and dirt

7.3.1. A print will be considered incorrect if a defect makes it impossible to correctly read the text or image.

7.3.2. The defect assessment procedure will be based on control sheets described and then put aside in a designated location. The number of control sheets will depend on the print run size as defined in our printing house's internal procedure.

7.4. Printing on customer-provided raw materials
If the print is produced on raw material provided by the customer, our printing house will meet the order to the amount provided.

8. Raw materials

Owing to the varying quality of raw materials available on the market, there is a risk of defects unattributable to our printing house. Such defects include:

- Deformation of a broadsheet on a pallet (boat-shaped). This makes it difficult for third-party companies to feed the sheet into a laminating machine. The reason why GD2 paperboard deforms on a pallet can be attributed to the manufacturing processes of this raw material itself and to the printing process aspects such as water and ink, in particular where large coverings result in paper property modification causing the paper to physically deform. This effect becomes more or less pronounced, depending on the paper fibre orientation and the Total Ink Limit (TIL). If this feature is unacceptable to the customer, we suggest replacing the raw material. This feature will not give grounds for complaint.

- Paper dust/contamination – Considering that, in most cases, paper is cut to a size to suit individual jobs, the problem of dust and contamination on raw material is widespread. This problem is most noticeable with solid colours. Our printing house will make every effort to reduce the extent of this phenomenon, but we cannot guarantee eliminating it completely. This is particularly true for uncoated papers and GD2 paperboard. Dust on these papers will not give grounds for complaint. In special cases, paper lamination is possible (with an additional pass of paper in the machine to remove dust), but this operation is charged as extra and is performed only at the customer's request. This feature will not give grounds for complaint.
- Base whiteness – GD2 paperboard is a waste raw material (it is made from recycled paper) and this affects its optical properties. The white on the base of GD2 paperboard varies considerable even within the same pallet. This affects colour stability in a print run, especially for light colours like, for example, Pantone Cool Grey. For customers who consider this defect unacceptable, we suggest replacing the raw material with a more colour-stable one, e.g. GC paperboard.

8.1. Raw material size stability – Acceptable variation in sheet size is ± 3 mm.

8.2. For solid colour printing, especially on RECYCLED raw materials like GD2 paperboards, we recommend reproducing them from a Pantone colour, preferably from two units, two plates. This will help considerably minimise unwanted paper contamination.

9. Bindery

9.1. Folding and perforation outside the printing machine line.

9.1.1. Folding – Fold deviation from the nominal line (for each fold):

Correct	Incorrect
≤ ± 1 mm	> ± 1 mm

A fold will be considered incorrect if it causes paper to wrinkle, crease, etc. and, as a consequence, it becomes impossible to read the text or image correctly.

9.1.2. Allowable page positioning deviations in a signature:

Correct	Incorrect
≤ 2 mm	> 2 mm

9.2. Sheet cutting
Allowable deviations when cutting a sheet into individual pieces:

Correct	Incorrect
≤ ± 1 mm	> ± 1 mm

9.3. Trim size
Allowable deviation of a copy trim size compared to the nominal size measured at the section of 100 mm:

	Correct	Incorrect
Trim at the head and tail edges	≤ ± 1 mm	> ± 1 mm
Trim at the fore edge	≤ ± 1 mm	> ± 1 mm

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9.4. Trim parallelism
Allowable deviation of two parallel edges of the binding, measured after folding a signature in half:

Correct	Incorrect
≤ ± 1 mm	> ± 1 mm

9.5. Page positioning

9.5.1. Allowable vertical deviation in page positioning between signatures in a finished copy:

Correct	Incorrect
≤ ± 2 mm	> ± 2 mm

This combines into a sum of allowable deviations from the preceding printing processes:
– Allowable fold deviation from the fold line of ± 1 mm,
– Allowable deviation between signatures of ± 1 mm.

9.5.2. Allowable vertical deviation between the binding and the textblock:

Binding Type	Correct	Incorrect
Adhesive	≤ ± 2,0 mm	> ± 2,0 mm
Saddle-stitched	≤ ± 1,5 mm	> ± 1,5 mm

9.5.3. Allowable deviation in the copy width between the binding and the inner pages in an adhesive and a saddle-stitched binding (caused by paper shrinkage, and variable humidity and substance weight):

Correct	Incorrect
≤ ± 1 mm	> ± 1 mm

9.5.4. The specimen binding's deviation in size from the specified trim size should fall into the allowable tolerance range. Any modifications of the specimen binding with respect to the specified trim size may only stem from striving to keep the image within the format.

9.6. Adhesive binding

9.6.1. As a standard, the side gluing between the binding and the textblock extends by 6 mm onto each page (i.e. second page of the binding and first page of the textblock, and first page of the textblock and third page of the binding), so the design should feature knockout for the adhesive in that area. It there are centrefolds between these pages (two-page image/artwork), they need to be moved away from the spine 5 mm each (the image will combine into one with a 5 mm shift). Additionally, the Inner centrefolds must also be moved apart from the spine side 1.5 mm per page.

9.6.2. Before specifying the materials for printing the binding, the spine thickness (which depends on the raw material thickness used for the paper stock) must first be determined.

9.6.3. If the paper fibre orientation in inner signatures is incorrect, the glued sections may become wavy, making it more difficult to open the publication.

9.6.4. The incorrect fibre orientation in the inner signatures relative to the binding (fibres perpendicular to the spine) is often attributed to the publication format, economical page/piece layout on a printed sheet and print quality; however, our printing house will not be in any way liable in this respect.

9.6.5. Bindings are bent on the spine to prevent cracking and tearing of the paper on binding edges. A binding above 250 gsm should be protected with a matt or gloss lamination prior to bending.

9.6.6. Inner signatures must not be varnished, especially in the spine and side joint sections, as this would greatly compromise the strength of the adhesive binding.

9.6.7. An excessive difference in gsm between the binding and the textbook may cause the finished product to come unglued (owing to stresses).

9.6.8. The strength of an adhesive binding is also affected by the publication format and the adhesion location: an album format or a back on the shorter side will greatly compromise the strength of an adhesive binding, because of the ratio of the adhesion side to the perpendicular side.

9.6.9. The strength of an adhesive binding is tested with a page pull tester. This test will be made on the Customer's request to assess the durability of the binding. If the Customer makes a complaint regarding the binding strength, our printing house will order strength testing, with the mean result forming the basis for resolving such complaint.

The number of sheets to be tested in an individual adhesive-bound book:
– 3 evenly spread sheets in a copy – for books with spine thickness ≤ 1 cm,
– 5 evenly spread sheets in a copy – for books with spine thickness > 1 cm.

For a Hot Melt Adhesive (Average Result) Correct	For a Hot Melt Adhesive (Average Result) Incorrect
≥ 7 N/cm	< 7 N/cm

For a PUR Adhesive (Average Result) Correct	For a PUR Adhesive (Average Result) Incorrect
≥ 8 N/cm	< 8 N/cm

9.6.10. Saddle-stitched binding

A saddle-stitched binding is correct when:
– Signatures remain connected and do not tear at the folds because of the staple used, plus the staple number (per edge) is as per the order. Staples are correct when:
  - They keep the stitched edges securely connected
  - Total length of the staple does not result in staple edge overlap,
  - Staple edges are bent as specified in the order (flat or loop);
– Bindings with 170 gsm and higher are bent on the spine to prevent cracking and tearing of the paper on binding edges. For bindings with more than 200 gsm, IT IS RECOMMENDED THAT A LAMINATE IS USED TO PREVENT CRACKING.

Allowable staple positioning tolerance perpendicular to the spine line:

Correct	Incorrect
≤ ± 1 mm	> ± 1 mm

Saddle-stitched bindings are not tested for strength, because the result would indicate the strength of paper rather than binding.

9.6.11. Die-cutting
Allowable position deviations of cut lines, bends and perforations:

Correct	Incorrect
≤ ± 1 mm	> ± 1 mm

A product is considered defective when:
a. Cut lines are ragged,
b. Bending lines are cracked,
c. Perforation does not come off at all,
d. Perforation comes off on its own,
e. Openings have not been cut thoroughly.

10. Product finishing

10.1. Lamination
A product is considered defective when:
a. The film comes off,
b. The film does not cover the entire product,
c. There are air bubbles trapped below the film (silvering),
d. There is mechanical damage on the film surface.

10.2. UV varnishing
Allowable deviations in varnish-to-artwork registration:

	Correct	Incorrect
Analogue technology	≤ ± 1 mm	> ± 1 mm
Digital technology	≤ ± 0,4 mm	> ± 0,4 mm

A product is considered defective when:
a. Varnish layer is not uniform (porosity),
b. Varnish layer is peeling off,
c. Varnish has not been cured.

11. Digital printing

11.1. Our printing house provides digital printing services. We use multiple machines: UV flatbed printers, solvent printers, inkjet printers and many more. To control colours across many different devices, our printing house uses ColorGate calibrating software. However, with the diversity of technologies and the number of substrates, we cannot guarantee perfect colour and resolution reproduction across printed jobs. The colour reproduction is inspected visually, taking into account the technical capabilities and process considerations.

11.2. Risks associated with using digital printing technology:
– Possible colour variation across various devices and raw materials,
– Print cracks on folds and bends with HP digital printing,
– Prints made on HP equipment not weather-resistant,
– Abrasion and scuffing of prints made on HP equipment – we recommend lamination.

11.3. PVC and mesh banners with hemmed edges or eyelets
The finished product size is reduced by 30 mm bleeds on each side.
The inner margin is 50 mm, calculated from each of the four banner/mesh edges. The inner margin is the area where no important information, such as texts or logos, must be located.
Optimum resolution: 100 dpi.

11.4. Billboard print jobs should be submitted with 2 mm bleeds on each side.
The inner margin is 150 mm and must not include any important text or logos.
Optimum resolution: 60 dpi.

11.5. Monomeric films, cast films, OWV films and roller banners
A design format with 1 mm bleed on each side.
Optimum resolution: 150 dpi.

11.6. Paper and blueback posters
A design format with 3 mm bleed on each side.
Optimum resolution: 150 dpi.

11.7. Hard substrates – PCV, HIPS, Plexi, Stadur, etc.
A design format with 5 mm bleed on each side.
Fixing holes 5 mm in diameter.
A fixing hole must not be located closer than 25 mm away from the finished panel edge.
Optimum resolution: 300 dpi.

11.8. Cutting / openings
The cutting-die file needs to be prepared in vector graphics software: in CorelDraw or Illustrator only.
The distance between cut lines must not be lower than 20 mm. Cut lines must not cross and they must always remain paths.

11.9. Optimum black colour parameters for printing in any digital technology: C 40%, M 40%, Y 40%, K 100%.

11.10. Tolerances:

Correct – Tolerance of	Incorrect – Tolerance of
Size ≤ 1%	Size > 1%
Banner edge weld ≤ 3 mm	Banner edge weld > 3 mm
Precision in eyelet positioning ≤ 5 mm	Precision in eyelet positioning > 5 mm
Roller banner, X banner width ≤ 2 mm	Roller banner, X banner width > 2 mm
Canvas print product size ≤ 2 mm	Canvas print product size > 2 mm
Billboard size ≤ 0.5%	Billboard size > 0,5%
PCV, Dibond, Plexi, HIPS, Stadur size ≤ 0.5%	PCV, Dibond, Plexi, HIPS, Stadur size > 0,5%

12. Delivery

Our printing house reserves the right for deviations in finished product quantity relative to the ordered quantity as per the following table:

Quantity	Allowable deficiency
0 to 250 pcs.	Unallowable print run deficiency
251 to 1000 pcs.	1%
1001 to 10000 pcs.	2%
10001 to ∞	3%

13. Packaging

The packaging and shipment standards are presented in a separate document.

14. Complaints

A detailed description of the complaint process is presented in a separate document called "Customer Complaint Procedure".

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